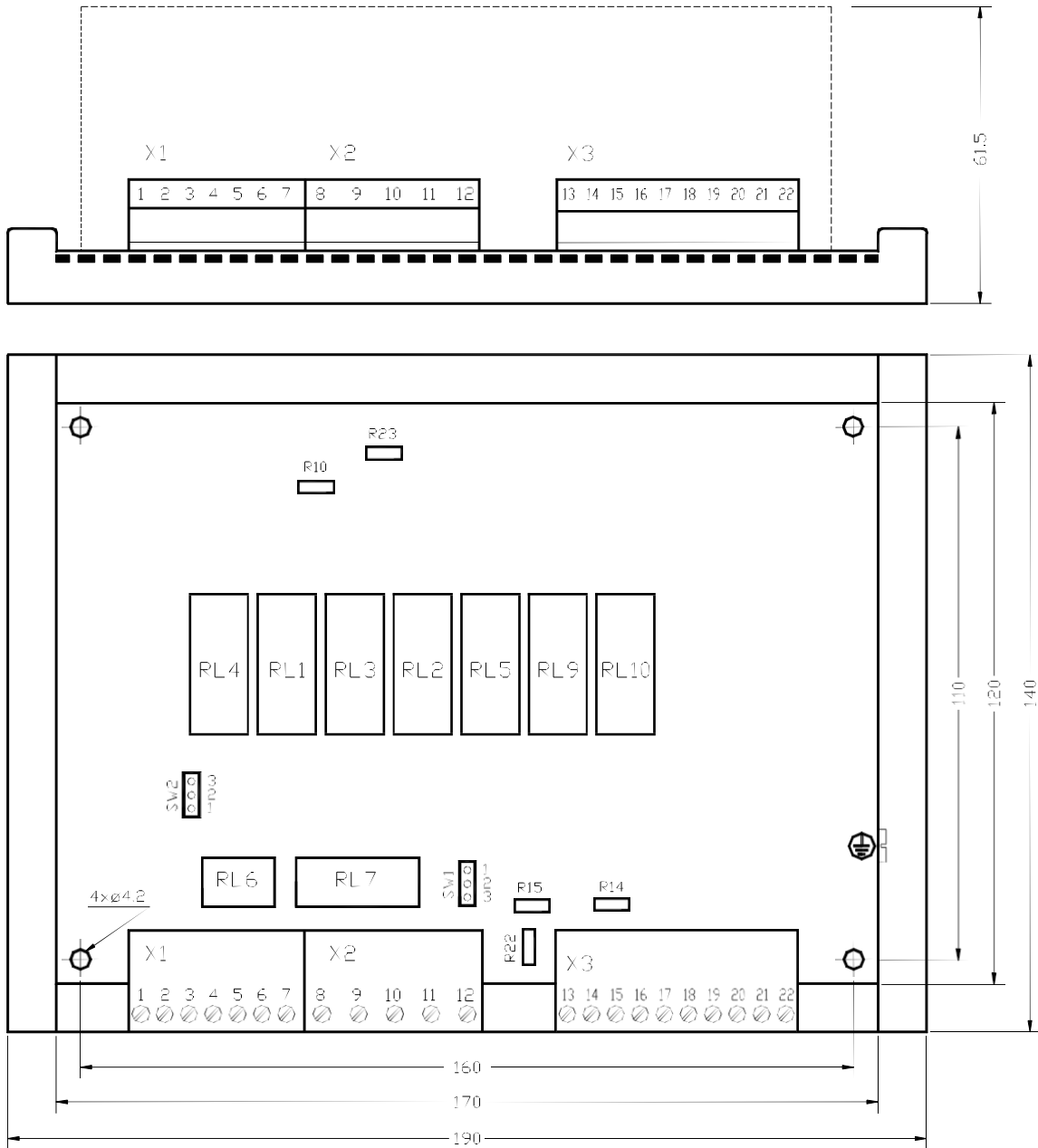


MANUAL

Change-over electronics C-AU-12



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When reversing DC motors with 1-quadrant thyristor controllers, it must be ensured that the direction of rotation is only changed at a very low speed.

If the motor is switched over directly at high speed, the motor armature is short-circuited by the freewheeling diode and a high current flows. This can destroy the freewheeling diode or the switching contacts.

With conventional relay circuits, this switching condition is often not sufficiently observed.

The change-over electronics C-AU-12 guarantees safe reversing operation with resistance braking up to a motor current of 12A.

The direction relays, the mains relays, the enable relay, the brake relay and the tachometer reversing relay are switched via the logic.

The tacho relay can be selected as a freely switchable relay by means of a plug-in jumper.

The brake relay can be supplied in the resistance brake or electrically excited brake version.

The selection of the directions of rotation can be made by means of a pushbutton function or a switching contact.
function.

Push-button operation

Jumper S1 plugged in, jumper S2 open.

Push-button operation requires two make buttons and one break button.

The open button is connected to terminal X1:3 as a stop button to terminal X1:5 (GND). The direction selection buttons are connected from terminal X1:1 to terminal X1:2 (direction of rotation +) and to terminal X1:4 (direction of rotation -).

When the direction key + is pressed, the mains relays, the enable relay and the direction relays are closed and the drive accelerates to the selected speed. If the direction button - is now moved, the release relay and the mains relays drop out and the brake relay picks up. The motor brakes.

As soon as a small speed is reached, the brake relay and the Direction relay + off and the direction relay -, the enable relay pull on and the drive accelerates in the - direction.

If the stop button is pressed, the function is the same as for change of direction, but at standstill all relays drop out and the drive stops.

Switch operation

Jumper S2 plugged in, S1 open

For each direction of rotation, a switching contact is connected between X1:1 and the direction input X1:2 or X1:4.

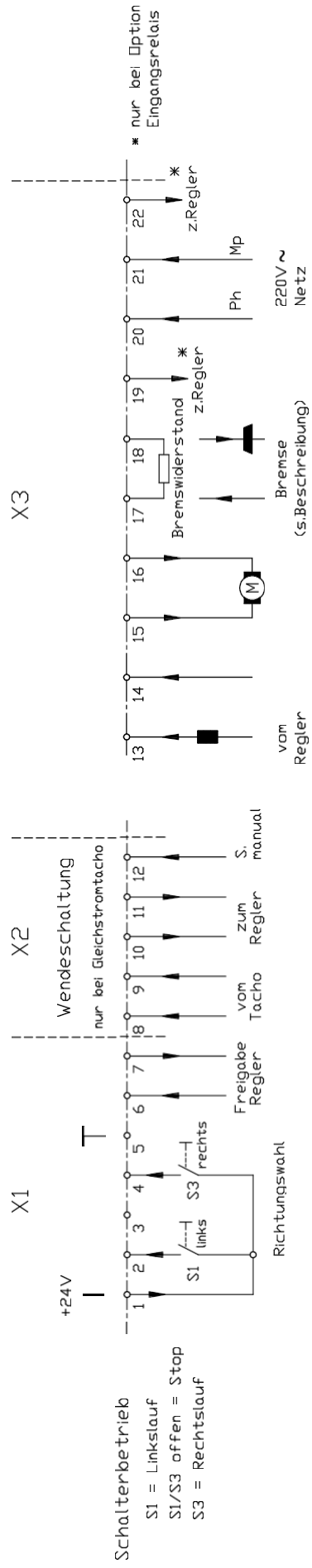
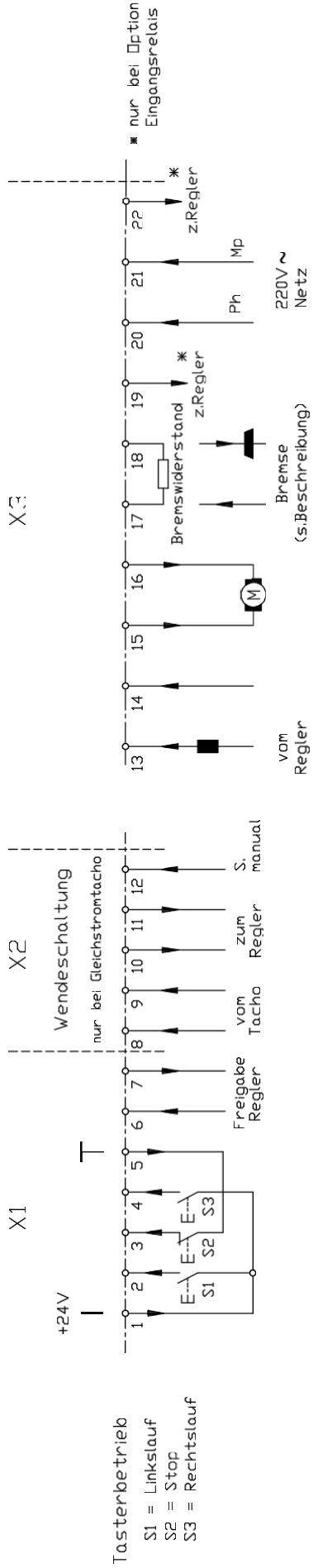
The stop input X1:3 is not connected.

If the contact at X1:2 is closed, the drive accelerates in the direction of rotation +.

If the contact at X1:4 is now closed and the contact at X1:2 is opened, the drive brakes down to low speed, switches over and accelerates in the direction of rotation.

If the contact at X1:4 is opened and the one at X1:2 is not closed, the drive brakes to a standstill and stops.

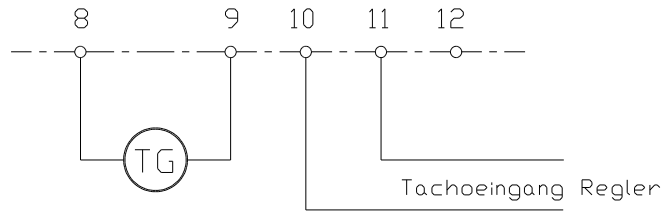
The relay switching procedure is described under push-button operation.



Schalterbetrieb
 S1 = Linkslauf
 S1/S3 offen = Stop
 S3 = Rechtslauf

With a DC tacho, the tacho voltage must be switched with the direction of rotation.

The plug-in jumpers SW1 and SW2 must be set to position 1-2.



If no DC tacho is used, relay 7 can be controlled externally via input X2:12 with the 24V voltage.

The plug-in jumpers SW1 and SW2 must be set to position 2-3.

Brake relay

The function of the brake relay can be set at the factory to resistance braking (normal) or to free switching contact.

When operating with braking resistor, the bridges R14 and R15 are soldered in and R22 is open. Resistor R23 is soldered in and resistor R10 is not fitted.

If the brake relay is used to switch a voltage (e.g. excitation of an electromechanical brake), the bridge R22 is equipped and the bridges R14 and R15 are open. The function of the relay is determined with the resistors R10 and R23.

If R10 is fitted, the relay picks up with the directional relays and drops out during braking operation. If R23 is fitted, the function is reversed.

For motors with field winding, note that the field supply must be present in braking mode.

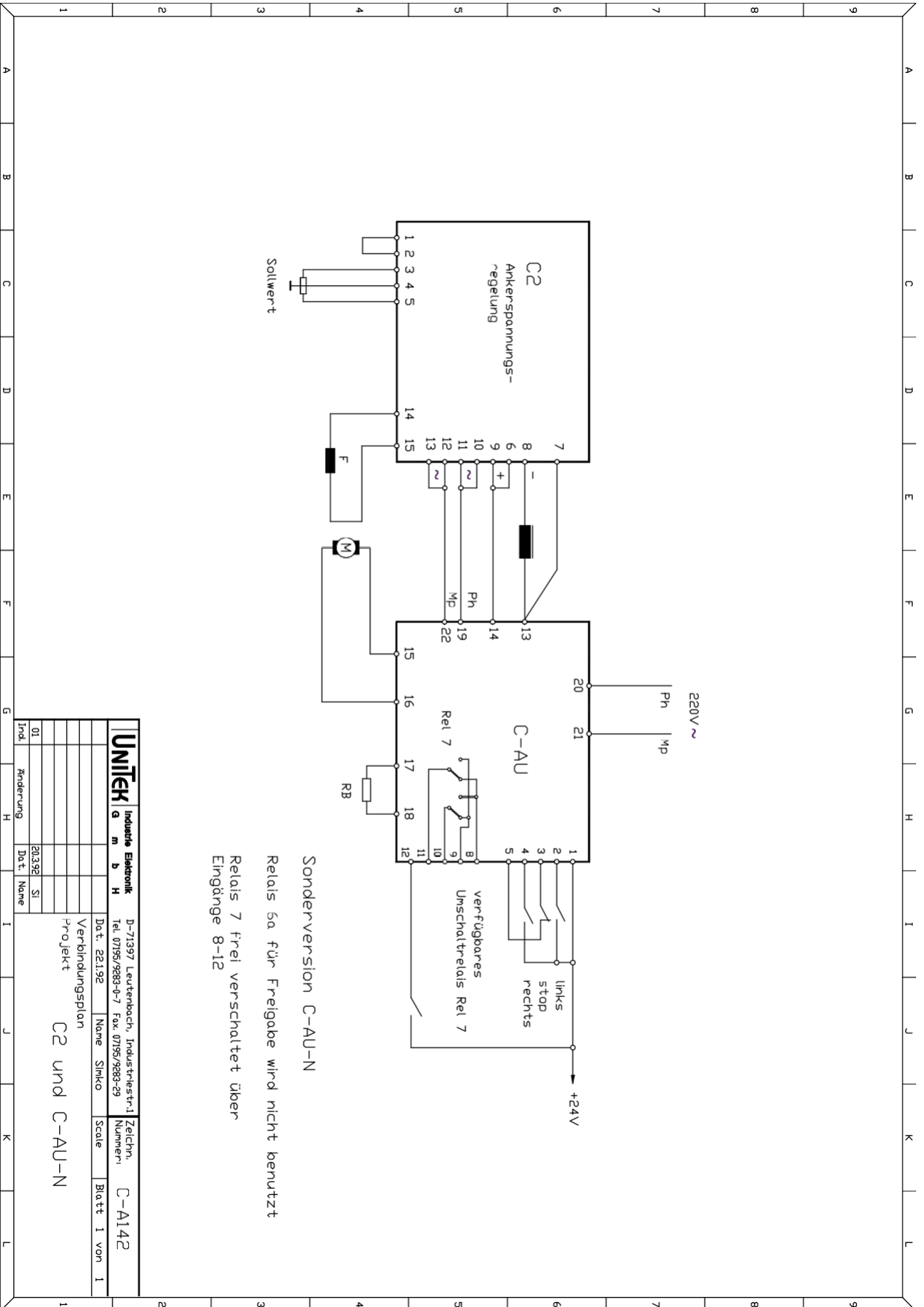
Mains relay

At standstill, the drive is disconnected from the mains with the relays RL9 and RL10 with two poles. With the selection of the direction relays, the mains relays also pick up.

Release relay

The direction selection closes the relay contact between X1:6 and 1:7. If the other direction is selected, the contact opens until it comes to a standstill and closes when the direction relays are switched over.

At stop, the contact opens to a standstill and remains open until a new direction selection is made.



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